Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1- 58 (cancelled)

59. (Currently amended) A soil treatment method for use in a pasture farming system comprising applying a nitrification inhibitor in a solution form, a crystalline form, a fine particle suspension form to cover substantially the whole of an area of grazed pasture soil, comprising animal urine and non-urine patch areas, to reduce: nitrate leaching; nitrous oxide emissions; ~~potassium, calcium or magnesium leaching;~~ and to increase pasture production.

60. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 59 wherein the nitrification inhibitor is applied in conjunction with either irrigation water or by a spray vehicle.

61. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 59, comprising applying the nitrification inhibitor to the grazed dairy pasture in autumn at a frequency and timing sufficient to reduce NO_3^--N leaching by about 76% for urine-N.

62. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 59 further comprising applying the

nitrification inhibitor to the grazed dairy pasture in Spring at a frequency and timing sufficient to reduce NO_3^--N leaching by about 42% for urine-N.

63. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 61, further comprising applying the nitrification inhibitor to the grazed dairy pasture in Spring at a frequency and timing which reduces NO_3^--N leaching by about 42% for urine-N thereby producing an annual average reduction of about 59%, which is equivalent to reducing the NO_3^- -N leaching loss in a grazed pasture from about 118 to about 46kg N ha^{-1} y^{-1}.

64. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 59 wherein the nitrification inhibitor is dicyandiamide (DCD), nitrapyrin or 3,4-dimethylpyrazole phosphate (DMPP).

65. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 59 wherein the nitrification inhibitor is in the form of a solution or fine particle suspension whereby the solution or fine particle suspension promotes permeation of the nitrification inhibitor throughout a soil surface layer.

66. (Previously presented) The soil treatment method for use in a pasture farming system as claimed in claim 59 wherein the nitrification inhibitor is applied multiple times to maintain the inhibition effect in the soil.

67. (Currently amended) A method of improving pasture production in a grazed pasture by applying a nitrification inhibitor, the method comprising the step of applying, a nitrification inhibitor in a solution and/or a fine particle suspension form to treat substantially the whole of a grazed pasture area, wherein said area comprises urine and non-urine patch areas, to thereby reduce: (1) nitrate leaching; or (2) nitrous oxide emissions~~; or (3) potassium, calcium or magnesium leaching in the grazed pasture~~.

68. (Previously presented) The method as claimed in claim 67, wherein drainage water from the grazed dairy pasture soil comprises a reduced NO_3^- N concentration, wherein the reduced concentration is to about 7.7 mg N L^{-1} from about 19.7 mg N L^{-1}

69. (Previously presented) The method as claimed in claim 67 wherein the nitrification inhibitor is DCD and the method increases pasture production from the whole of the grazed pasture by more than 15%.

70. (Previously presented) The method as claimed in claim 67 wherein the nitrification inhibitor is a fine particle suspension of DCD, and wherein the DCD is present at least partially in crystalline form.

71. (Previously presented) The method as claimed in claim 69 wherein the application of DCD reduces total annual NO_3^--N leaching loss from about 488 to about 112 kg N ha^{-1} y^{-1}.

72. (Previously presented) The method as claimed in claim 67 wherein the nitrification inhibitor is DCD and the DCD is applied after a urine application in the Spring thereby reducing total annual NO_3^--N leaching loss from about 397 to about 230 kg N ha^{-1} y^{-1}.

73. (Previously presented) The method as claimed in claim 69, wherein the DCD is applied after a urine application in the Spring thereby reducing total annual NO_3^--N leaching loss from about 397 to about 230 kg N ha^{-1} y^{-1} and reducing NO_3^--N leaching by an average of 76.1% for the urine N applied in the autumn, and by 42.1% for the urine N applied in Spring.

74. (Previously presented) The method as claimed in claim 67 wherein the nitrification inhibitor is DCD and further comprises applying urea in an amount sufficient to achieve 200 kg N ha^{-1} y^{-1} throughout the pasture and wherein, when the pasture is grazed by about 3 cows per ha, the average annual NO_3^--N leaching loss is reduced from about 118 to about 46 kg N ha^{-1} y^{-1}.

75. (Currently amended) The method as claimed in claim 67 wherein increase in pasture N off-take as a result of DCD application is equivalent to about 23% for the autumn urine applications ~~treatments~~, and about 9% for the spring urine applications ~~treatments~~, giving an annual average of about 16%.

76. (Previously presented) The method as claimed in claim 67 wherein DCD is applied and pasture yields increase from about 11.1 to about 13.0 t ha^{-1} y^{-1}.

77. (Currently amended) The method as claimed in claim 67 wherein DCD is applied 5 times in a spring urine application and 9 applications in an autumn urine application~~treatment~~.

78. (Previously presented) The method as claimed in claim 67 wherein DCD is applied in two applications per year.

79. (Previously presented) The method as claimed in claim 67 wherein the use of DCD reduces NO_3^--N leaching by about 76% for the urine N applied in autumn, and by about 42% for urine N applied in Spring, giving an annual average reduction of about 59% to thereby reduce the NO_3^--N leaching loss in the whole area of a grazed paddock from about 118 to about 46 kg N ha^{-1} y^{-1}.

80. (Previously presented) The method as claimed in claim 67 wherein application of DCD results in a reduction in the NO_3^--N concentration in the drainage water from about 19.7 to about 7.7 mg N L^{-1}.

81. (Previously presented) The method as claimed in claim 80 wherein the use of DCD increases pasture production by more than 15%, from about 11.1 to about 13.0 t ha^{-1} y^{-1}.

82. (Currently amended) The method as claimed in claim [[67]] 99 wherein the application of the nitrification inhibitor reduces calcium (Ca^{2+}) leaching by about 50% (from about 213 to about 107 kg/ha/y), reduces potassium (K+) leaching by about 65% (from about 48 to about 17 kg/ha/y) and reduces magnesium (Mg^{2+}) leaching by about 52% (from about 17 to about 8 kg/ha/y).

83. (Previously presented) The method as claimed in claim 67 wherein the application of the nitrification inhibitor reduces nitrous oxide emissions following urine application in autumn from about 26.7 kg N_2O-N ha^{-1} without DCD to about 7.0 kg N_2O-N with DCD applied.

84. (Previously presented) The method as claimed in claim 67 wherein the nitrification inhibitor is DCD and wherein application of DCD reduces nitrous oxide emissions following urine application in Spring from about 18.0 kg N_2O-N ha^{-1} without DCD to about 4.5 kg N_2O-N ha^{-1} with DCD applied.

85. (Currently amended) A method of reducing nitrate leaching; nitrous oxide emissions; ~~potassium, calcium or magnesium leaching,~~ from a grazed pasture soil including animal urine patches to increase pasture production, the method including the step of applying a nitrification inhibitor in solution, a fine particle suspension form, a crystalline form, or a combination of a solution, a fine particle suspension form, a crystalline form, over substantially the whole surface area of the grazed pasture.

86. (Previously presented) The method according to claim 59 wherein the grazed pasture is contained within at least one paddock.

87. (Previously presented) The method according to claim 67 wherein the grazed pasture is contained within at least one paddock.

88. (Previously presented) The method according to claim 85 wherein the grazed pasture is contained within at least one paddock.

89. (Previously presented) The method according to claim 86 wherein the paddock is at least substantially 0.5 of a hectare in area.

90. (Previously presented) The method according to claim 87 wherein the paddock is at least substantially 0.5 of a hectare in area.

91. (Previously presented) The method according to claim 88 wherein the paddock is at least substantially 0.5 of a hectare in area.

92. (Previously presented) The method according to claim 85 wherein the nitrification inhibitor is applied in Autumn and/or Spring.

93. (Previously presented) The method according to claim 85 in which the nitrification inhibitor is dicyandiamide (DCD).

94. (Previously presented) The method according to claim 85 in which the nitrification inhibitor is 3, 4-dimethylpyrrazole phosphate (DMPP).

95. (Previously presented) The method according to claim 64 wherein the nitrification inhibitor is a fine particle suspension of DCD, wherein the DCD is present at least partially in crystalline form.

96. (Previously presented) The method according to claim 93 wherein the nitrification inhibitor is a fine particle suspension of DCD, wherein the DCD is present at least partially in crystalline form.

97. (Previously presented) The method as claimed in claim 67 wherein DCD is applied in Spring and/or Autumn.

98. (New) A soil treatment method for use in a pasture farming system as claimed in claim 59 wherein the application of the nitrification inhibitor reduces potassium, calcium or magnesium leaching in addition to reducing nitrate leaching, nitrous oxide emissions and increasing pasture production.

99. (New) The method as claimed in claim 67 wherein applying the nitrification inhibitor reduces potassium, calcium or magnesium leaching in addition to reducing nitrate leaching; nitrous oxide emissions.

100. (New) A method as claimed in claim 85 wherein applying the nitrification inhibitor reduces potassium, calcium or magnesium leaching in addition to reducing nitrate leaching; nitrous oxide emissions.